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EFFECTS OF SOCIAL CLASS AND LEVEL OF ASPIRATION ON PERFORMANCE IN A STRUCTURED MOTHER-CHILD INTERACTION SITUATION.

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RELATIONSHIPS BETWEEN SOCIAL CLASS, SUCCESS EXPECTATIONS OF MOTHERS, AND A TASK PERFORMANCE OF MOTHER AND CHILD WERE EXAMINED TO DETERMINE WHETHER DIFFERENCES IN EXPECTATIONS OF SUCCESS WOULD BE REFLECTED IN PERFORMANCE SCORES AND IN MEASURES OF EFFORT IN A PERCEPTUAL MOTOR TEST. THE SUBJECTS WERE 160 NEGRO MOTHERS FROM FOUR SOCIOECONOMIC LEVELS--MIDDLE CLASS INTACT FAMILY, UPPER-LOWER INTACT, LOWER-LOWER INTACT, AND LOWER-LOWER FATHER ABSENT--AND THEIR 4-YEAR-OLD CHILDREN DIVIDED EQUALLY BY SEX. THE TASK WAS TO REPRODUCE FIVE SIMPLE POLYGONS ON THE -ETCH-A-SKETCH- TOY WITH ONE KNOB WORKED BY THE MOTHER AND THE OTHER BY THE CHILD. BEFORE EACH TASK THE MOTHER WAS ASKED TO PREDICT HER SCORE IN DUPLICATING THE MODEL. THE MOTHER'S TASK WAS SEEN PRIMARILY AS THAT OF CONTROLLING THE CHILD AND EVOLVING A MUTUALLY UNDERSTOOD DIRECTIONAL SYSTEM. DATA WERE COLLECTED ON FIGURE SCORES, AND VERBAL BEHAVIOR AND PHYSICAL ACTIVITY WERE OBSERVED AND RECORDED. THE MIDDLE CLASS GROUP SCORED HIGHER THAN THE OTHERS, WHO DID NOT DIFFER SIGNIFICANTLY AMONG THEMSELVES. IT WAS ALSO FOUND THAT THE KIND AND EXTENT OF CONTROL EXERCISED OVER THE CHILD WERE MORE POTENT IN DETERMINING SCORES THAN WERE "STRICTLY MATERNAL COGNITIVE VARIABLES." THERE WAS, IN ADDITION, A LACK OF CORRELATION BETWEEN PREDICTIONS AND OTHER MEASURES. ALL EXPECTATIONS THAT THE PREDICTIONS WERE MEASURING ACHIEVEMENT MOTIVATION WERE UNCONFIRMED. THIS PAPER WAS PRESENTED AT THE SOCIETY FOR RESEARCH IN CHILD DEVELOPMENT MEETINGS (MINNEAPOLIS, MARCH 25, 1965). (JG)

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EFFECTS OF SOCIAL CLASS AND LEVEL OF ASPIRATION ON PERFORMANCE IN A STRUCTURED MOTHER-CHILD INTERACTION SITUATION.[1]

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ABSTRACTED

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I. Introduction

The present study (part of a larger study of the Cognitive Environments of Urban Pre-School Children) investigated the relationship between achievement expectations and performance in a structured interaction during which mothers worked cooperatively with their four year-old children. It is part of a large scale effort to specify and measure cultural factors that contribute to the cognitive environment of the preschool child, emphasizing those that appear to influence his educability. One area of cultural factors that seems relevant here is the cluster of parental attitudes and child rearing practices that Rosen (1) has called "The Achievement Syndrome." Comparisons of lower class subjects with middle class subjects have shown that the middle class subjects score significantly higher on measures of need achievement (2), just as they do on cognitive performance measures. A study by Rosen and D'Andrade in 1959 (2) showed that differences in need achievement are reflected in performance. Working with 9 to 11

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year old boys and their parents, they showed that parental differences in achievement socialization were reflected in the performance of the boys at various intellectual and motor tasks, even though the boys had been matched by social class and by intelligence. In other words, differences in achievement training by the parents had led to differences not only in the achievement motivation of the boys but in their actual performance as well. One such difference occurred in the levels of the standards of excellence posed by the parents for their sons' performance. When asked to set goals or to predict their sons' scores, the parents of high achievers showed greater expectations for success than the parents of low achievers--they set higher standards of excellence.

The present study addressed itself to the standards of exeellence of mothers of different social status levels as expressed in an interaction situation in which they worked cooperatively with their four year-old children at a perceptual-motor task. We wished to see if social class differences would appear in the success expectations of the mothers, and to specify the relationship between these expectations and the performance at the task.

Specifically, we expected that differences in expectations of success would be reflected in performance scores and also in measures of effort expended at the task, since this seems to be another aspect of achievement motivation.

II. Method

A. Subjects: The subjects were 160 Negro mothers and their four year old children divided equally by sex. There were four social status groups:

1. Group A. Middle class intact families. Parents with college education, father's occupation at a professional or managerial level.
2. Group B. Upper Lower class intact families. Parents had a high school education, father worked at a skilled occupation.
3. Group C. Lower Lower class intact families. Parents had no more than a 10th grade education, father worked at an unskilled or semi-skilled occupation.
4. Group D. Lower Lower class, father absent. The mother had no more than a 10th grade education. Family supported by public assistance (Aid to Dependent Children).

B. Apparatus: The task involved the copying of five relatively simple geometric polygons with the "Etch-A-Sketch", a commercially available toy. The toy consists of a screen on which lines may be drawn by manipulating two knobs. If one of the knobs is turned clockwise, a line will appear moving horizontally across the screen to the right. If the knob is turned counterclockwise, the line will move to the left. Similar use of the other knob causes the line to move up or down. If the knobs are turned simultaneously, diagonal lines appear. Many two-dimensional figures and designs can be produced by proper and systematic manipulation of the knobs. The board can be cleared at any time simply by shaking it.

The five models that the subjects were asked to copy were all simple geometric polygons that could be constructed by turning the knobs in succession. No diagonal or curved lines were included. All that was required to construct a given line correctly was to start turning in the proper direction and to stop at the proper place. If an error was made in either case, it could be corrected

by reversing the knob, although a short "tail" would remain, extending off from one corner. Since there is no way to erase one part of a figure without destroying the entirety, the only way to get a perfect figure once an error is made is to start all over again with an empty screen.

The task from the standpoint of the mother, then, was primarily one of controlling the child. She had to be able to communicate to the child which way she wanted him to turn the knob before he began to turn, and then get him to stop at the precise point she desired. Errors were inevitable unless a mutually understood directional system was installed.

C. Procedure: Before the child entered the room, the mother was familiarized with the "Etch-A-Sketch" and allowed to practice until she was able to draw a square by herself. Later, with the child present, the mother was told that she and her child were to copy five designs together. She would use the knob that drew horizontal lines, and the child would use the one that drew vertical lines. The mother could give the child any directions she wished, but she was never to touch his knob. At this point the mother and child were allowed three minutes to practice together. Following this the mother was shown the first model and given the remaining directions. Before attempting each model she would be asked to predict how many points she and her child could earn out of a specific maximum (equal to the number of lines in the model). They could attempt each design as many times as she desired, continuing until they produced a figure with which the mother was satisfied. This figure would be the attempt that would be counted in deter-

mining their score. Points would be awarded according to how closely the model was duplicated. The mother could turn in a board at any time and start a figure over. The models were introduced one at a time as the mother indicated that she wished to go on to a new one. Every attempt, whether or not the mother accepted it, was traced by the experimenter and later scored by measuring deviations from the models.

In addition to the scores for the figures, the predictions, the number of attempts, and the time spent at the task were recorded. Intelligence data were available from previous testing (WAIS verbal subscales for the mothers, Binet and Columbia Mental Maturity for the children). The verbal behavior of the subjects was tape recorded and their physical activity was described by an observer stationed behind a one-way mirror.

III. Results

A. Social Class Differences: The results for predictions and scores are presented in Tables 1 and 2.* They show that the means are rank ordered according to social class, except for Group D. A t-test of statistical significance shows that the middle class group gave significantly higher predictions than both of the lower-lower class groups C and D ($p<.05$) and the upper-lower group B gave significantly higher predictions than Group C ($p<.05$). The data from the performance scores shows that the middle class scored higher than all the other groups ($p<.01$), which did not differ significantly among themselves.

* N differs somewhat in the tables because all data were not available for some subjects.

The data for the number of attempts and the time spent at the task are presented in Tables 3 and 4. For total attempt Groups D and B each differ significantly from the other two groups ($p < .05$).**

Similar relationships are seen in the data for time, although here only the two lower-lower groups C and D differ significantly. In general, Groups D and B invested more time and effort in the task than did Group C. The middle class means fell in between.

B. I. Q. Effects

1. Predictions: The prediction totals show no correlation whatever with the intelligence measures from either the mother or the child. All correlations are approximately zero, in spite of the fact that predictions do correlate with level of social class ($r = .24$, $p < .01$).
2. Scores: The score totals correlate positively ($r = .37$-$.47$, $p < .005$) with the verbal subtests of the WAIS. Correlations with the child's I.Q. measures are positive but insignificant ($r = .14$-$.18$). The relationship between maternal I.Q. and total score was stronger than that between social class and total score ($r = .25$, $p < .01$).

** The data from the upper-lower subject who had 83 attempts were excluded in running significance tests on the data for for attempts. Her extreme score would have added over two points to the upper-lower mean and seriously skewed the distribution. We believed that the relative position of the upper-lower group as a whole is better represented by the adjusted figures, which appear in parenthesis in Table 3.

The correlations within social class between maternal I.Q. and scores on the task show that I.Q. was most highly correlated, as would be expected, at the lower ranges. The correlation within the middle class Group A was not significant (r= .22). For Groups B, C, and D, however, the correlations rose to .46, .58, and .47 ($p<.001$) respectively. While these are highly significant correlations, they reflect an association of only moderate strength. Except at the lowest intellectual levels, it appears that the mother-child relationship, in particular the kind and extent of control exercised over the child, was more potent in determining the scores than were the strictly cognitive maternal variables.

C. Effects of Time Spentat the Task: The correlations within class between time spent at the task and the totals for predictions and scores are presented in Table 5. Considerations of practice effects (with regard to the scores) and of achievement motivation (with the predictions) would lead one to expect moderate correlations here, but they do not appear. There are positive trends in Groups A and D, but near-zero values for the other two groups. None of the correlations reach statistical significance.

D. Interaction of Predictions with Scores: Table 6 gives the correlations within class between predictions and scores. Of particular interest here is the similarity between theGroups A and D and the contrast between these groups and the other two. The correlations between total predictions and total score are all positive, but are much higher in Groups A and D. The correlations between predictions for a single figure and scores on that same figure tend to be

uneven, but a pattern is discernible: as the task progressed, Groups A and D tended to predict more accurately. The other groups, especially Group B, fail to show a clear-cut trend. When the individual predictions are correlated with the scores for the previous figure, the same tendencies appear.

The percentage of the total possible predicted and scored on each design are presented in Table 7. Inspection of these percentages shows that the predictions dropped consistently for all groups, but that the scores were affected by differences in the difficulty of the designs. The gradual rise in correlation between prediction and score appears to have resulted from the gradual drop in the predictions, while the unevenness of these correlations seems related to the unevenness in score percentages.

It is of interest that the wide differences between the groups (Groups A and D vs. Groups B and C) in the pattern of correlation between predictions and scores are not evident from inspection of the percentage data. These data show highly similar patterns across social class for both predictions and scores.

IV. Discussion

Two trends seem striking in these data: the large differences among the three lower class groups, and the general lack of correlation between the predictions and the other measures.

The lower-lower Group C seems best described as having shown low achievement motivation on this task. They showed the least expectation of success and lowest expenditure of effort at the task. The upper-lower group B had high expectations and expended much time and effort, but was no more successful than the two lower-

lower class groups. They consistently showed a lack of relationship between their score and the other measures. One clue to what may have been involved appears in the scatterplot for predictions and scores of Group B. While a low positive Pearson correlation is obtained, the scatterplot shows a clear-cut and pronounced curvilinearity. In this group, and only in this group, high scores are associated with both very low and very high predictions. It may be that for some of this group, motivation to achieve was so great that it actually interfered with performance. We suspect that many upper-lowers were characterized by a rigid and demanding but not very effective determination. It is of interest here that the prediction levels of the upper-lowers fell more slowly and ended up at a much higher level than those of the lower-lower groups (See Table 7). We hope to learn more about the upper-lowers when we analyze the ratings of the mothers' expressed pressure, support, praise, and criticism of the children.

The data for Group D parallel those for the middle class group A for the most part in the way that the variables interrelate. They add up to a picture of a group of willing subjects who have limited skills. They show neither the high motivation and rigidity of the upper-lowers nor the suggested apathy of the other lower-lower group. As yet we cannot say whether their results are due to qualities of the mothers themselves or to class specific factors in the mother-child relationship. We hope to shed new light on the matter by analyzing other data.

The prediction data conform to some extent with similar data from other level of aspiration experiments in that the pre-

dictions were higher than the actual scores and in the tendency of the predictions to move closer to performance levels as the subjects got feedback from doing the task. However, even the latter trend is ambiguous since it appeared only in groups A and D. The curvilinear trend in Group B accounts for the low correlations within that group, but no recognizable pattern of any kind appears for Group C.

Even though there is some interaction of predictions with scores, all expectations based on the theory that the predictions were measuring achievement motivation were disconfirmed. The predictions showed no significant correlation with the measures of effort (time and number of attempts). Furthermore, if the predictions are construed as measures of achievement motivation, there should be some evidence that they acted as antecedent determinants of performance. Tables 6 and 7 show that there is no such evidence in the data and that, on the contrary, changes in the predictions seem best understood as consequent variables with respect to the previous scores. Changes in the scores reflect differences in the difficulty of the figures, but show no relationship to prediction changes.

What it is that the predictions are measuring remains an open question. Hierarchically ordered class differences do appear, and the curvilinear distribution in Group B conforms to the theoretically described relationship between motivation and performance. In Group C, however, the predictions may reflect only a tendency to comply outwardly with the demands of the task without being ego-involved in it. In any case, the predictions of the mothers

do not predict the scores for either group.

Other measures do not add much more information, since so far the predictions have been found to correlate significantly only with the Thurstone Sociability Scale and with the total number of "Yes" responses on an inventory of likes and dislikes. This suggests that high predictions may be associated with a high energy level and an interest in doing many different things, as well as a desire to get along with others. The possibility remains open that prediction levels were related to differential treatment of the child during the task. We intend to investigate this possibility, and perhaps in this way to shed more light on the meaning of the predictions in our sample.

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TABLE 1.

PREDICTIONS

Group	N	Mean Prediction	Range	Variance	Rank		t-test (1-tailed)		
							B	D	C
A	38	27.500	6-50	124.364	1	A	N.S.	.05	.05
B	40	25.650	7-45	89.003	2	B	-	N.S.	.05
C	37	21.216	0-42	113.285	4	D		-	N.S.
D	39	22.950	7-43	89.050	3	C			-

TABLE 2.

SCORES

							D	B	C
A	38	15.053	0-39	90.430	1	A	.01	.01	.01
B	40	9.500	0-30	59.897	3	D	-	N.S.	N.S.
C	37	8.811	0-31	61.824	4	B		-	N.S.
D	39	10.026	0-32	64.026	2	C			-

TABLE 3.

TRIALS

							B*	A	C
A	40	12.700	7-28	20.780	3 (3)	D	N.S.	.05	.05
B	42	17.317	7-83	158.137	1 -	B*	-	.05	.05
B*	(41)	(15.293)	(7-30)	(50.212)	- (2)	A		-	N.S.
C	38	11.921	5-32	31.102	4 (4)	C			-
D	38	15.684	8-54	75.103	2 (1)				

*For t-tests, Group B results were adjusted to remove the individual who had 83 trials.

Key:
A=Upper Middle Class (professional, managerial; college education),family intact
B=Upper Lower Class (skilled worker; high school education), family intact
C=Lower Lower Class (unskilled worker; maximum education 10th grade), family intact
D=Lower Lower Class (maximum education 10th grade), father absent, family on public assistance

TABLE 4.

TOTAL TIME (Mean time in minutes)

Group	N	Mean Time	Range	Variance	Rank		t-test B	t-test A	t-test C
A	40	24.525	13-50	66.871	3	D	N.S.	N.S.	.05
B	41	27.073	9-72	132.32	2	B	-	N.S.	N.S.
C	38	23.053	7-44	60.484	4	A		-	N.S.
D	40	27.300	11-56	91.703	1	C			-

TABLE 5.

CORRELATIONS OF TIME WITH PREDICTIONS AND SCORES

	A	B	C	D
Total Predictions, Total Time	.20	.06	.11	.18
Total Score, Total Time	.20	.00	- .03	.18

TABLE 6.

CORRELATIONS BETWEEN INDIVIDUAL PREDICTIONS AND SCORES

Prediction	Score				
Fig. 1	Fig. 1	-.12	-.10	-.06	.15
Fig. 2	Fig. 2	.37	-.02	-.03	.05
Fig. 3	Fig. 3	.11	-.07	.19	.06
Fig. 4	Fig. 4	.52	.08	.27	.28
Fig. 5	Fig. 5	.29	.25	.20	.39
Fig. 2	Fig. 1	.11	-.05	.14	-.04
Fig. 3	Fig. 2	.39	.17	.04	.06
Fig. 4	Fig. 3	.38	-.08	.26	.24
Fig. 5	Fig. 4	.48	.08	.10	.39
Total	Total	.48	.21	.24	.45

TABLE 7.

PERCENTAGES OF THE TOTAL POSSIBLE PREDICTED AND SCORED

% Predicted Fig.	A	B	C	D	% Scored Fig.	A	B	C	D
1	64	62	58	62	1	31	17	19	29
2	61	60	53	60	2	23	17	13	15
3	60	57	49	54	3	26	13	12	16
4	58	50	44	49	4	31	17	17	19
5	49	45	33	36	5	33	24	21	23